

CLAIMS

What is claimed is:

1. A method of plating a metal layer over isolated pads arranged in a ring array on a semiconductor package substrate, comprising:

preparing a substrate having a plurality of conductive blind vias electrically connected with internal circuits thereof, and a plurality of isolated pads formed on a substrate thereof, wherein each of the isolated pads has a plating line that extends towards one of the conductive blind vias and is electrically insulated from the conductive blind via such that an electrically insulating region exists between terminals of the plating lines and the conductive blind vias;

applying a conductive film over the surface of the substrate, for electrically interconnecting the conductive blind vias and the plating lines;

applying a photoresist layer over the conductive film, wherein the photoresist layer is formed with at least one opening for exposing a portion of the conductive film covering the isolated pads;

removing the portion of the conductive film exposed through the opening of the photoresist layer, allowing the isolated pads to be electrically connected with the conductive blind vias by the conductive film;

electrifying the substrate to plate a metal layer on the isolated pads respectively; and

removing the photoresist layer and the remainder of the conductive film covered by the photoresist layer, to restore the electrical insulation between the isolated pads and the conductive blind vias.

2. The method of claim 1, further comprising: applying a solder mask layer on the surface of the substrate, wherein the solder mask layer is formed with a plurality of openings for exposing the isolated pads respectively having the metal layer thereon.

3. The method of claim 2, wherein the solder mask layer is made of green paste.
4. The method of claim 2, wherein the opening of the solder mask layer is smaller than the isolated pad to form a solder mask defined (SMD) pad.
5. The method of claim 2, wherein the opening of the solder mask layer is larger than the isolated pad to form a non-solder mask defined (NSMD) pad.
6. The method of claim 1, wherein the conductive film is made of a material selected from the group consisting of metal, alloy, and conductive polymer.
7. The method of claim 6, wherein the conductive film is made of a material selected from the group consisting of copper, tin, nickel, chromium, titanium, copper-chromium alloy, and tin-lead alloy.
8. The method of claim 1, wherein the photoresist layer is made of a dry film or liquid photoresist.
9. The method of claim 1, wherein the metal layer is made of a material selected from the group consisting of gold, nickel, palladium, silver, tin, nickel-palladium alloy, chromium-titanium alloy, nickel-gold alloy, palladium-gold alloy, and nickel-palladium-gold alloy.